

XXXIX.—*Descriptions of two new genera (Pfeifferia and Janella) of Land Mollusca.* By J. E. GRAY, Ph.D., F.R.S., V.P.Z.S.

SOME years ago I described a new genus of Helices under the name of *Nanina*, remarkable from the mantle of the animal being reflexed and produced over the surface of the shell, like *Vitrina*, but differing from that genus in the shell being more Helicoid, and in the mantle not being produced in front, or forming a kind of shield over the back of the neck; this genus has been very generally adopted, and now contains a large number of species.

The animal of *Nanina*, like the *Parmacella* and *Helicariones*, has the hinder part of the uppermost extremity of the foot truncated and furnished with a linear perpendicular gland with thickened lips.

Mr. Cuming, who lately supplied me with a number of animals of shells in spirit, sent me, along with other kinds, specimens of a shell which Dr. Pfeiffer has described under the name of *Helix micans*, which at once attracted my attention, on account of the shell near the peristome being covered with a thin reflexed portion of the mantle. I at first considered it was a modification of the genus *Nanina* with a more dilated mantle, and a much more globular shell; but on more particular examination, I am convinced that it is the type of a new genus, as the back of the foot is depressed and flattened, and quite destitute of any appearance of a subcaudal gland.

I propose to call this genus *Pfeifferia*, after my excellent friend Dr. Louis Pfeiffer, the author of the "Monographia Helicum," and it may be characterized as follows:—

PFEIFFERIA.

Animal large for the size of the shell; mantle edge expanded, thin, reflexed over the outer surface of the shell when contracted in spirits, forming an even margin to the outer part of the peristome. Foot moderate, depressed behind, acute at the tips, without any subcaudal gland. Shell subglobose, imperforate, thin, brittle, white, pellucid. Spire with small whorls, third and fourth rapidly enlarging, the last inflated; aperture rounded, lunate. Columella slightly and regularly arched. The peristome thin, straight, acute.

Mr. Cuming informs me, that when he poured boiling water on them, to kill the animal, the animal, in attempting to return within the shell, burst it, from being so much larger than the shell itself; in consequence he was compelled to drown the animal and let it remain in the water until it was half putrid, by which means

he was able to procure sound shells. He tried it several times, and destroyed some hundreds of shells before resorting to the latter means.

I may observe, that the animal in spirits does not give one the impression of being so large, compared with the shell, as the above description would imply; but, like the *Succineæ*, *Vitrinæ* and other genera, these animals appear to have the faculty of absorbing a quantity of moisture and of inflating their bodies and making them appear of a large size, and when suddenly killed they have not the power of lessening it, but while alive they certainly have. During dry and perhaps cold weather they expel the air and water, and so contract their bodies, that they can be withdrawn a considerable distance within the cavity of the shell. I have often seen this œconomy in the amber snails, *Succineæ*, and the shield shells, *Vitrinæ*, and Professor Nilsson has observed the same fact with regard to the latter genus, as quoted by me (Gray, Turton Man. 119).

The type of the genus is *Pfeifferia micans*.

Helix micans, Pfeiffer, *Proc. Zool. Soc.* 1845, 71; *Monogr. Helic.* ii. 24.

Corasia micans, Albers, *Heliceen*, 111.

Nanina Albaiensis, Gray, *Ann. & Mag. N. H.* 1853, p. 331, teeth.
Hab. Luçon.

Mr. Cuming observed it in the greatest abundance on the leaves of bushes at St. Jauno, in the province of Cagayan, at the extreme north part of the island of Luçon.

Dr. Albers refers the species to his subgenus *Corasia*, consisting of *Helices* with large reflected peristomes; the shells have some resemblance to the young imperfect specimens of some species of that genus, as *Helix Albaiensis*, but they differ from them in the pillar lip being evenly arched and imperforate, and not straight from the axis and slightly perforated, as in their young shells it always is.

MM. Quoy and Gaimard described a land mollusk which they discovered on leaves in Tasman's Bay, New Zealand, under the name of *Limax bitentaculatus*, Voy. *Astrolabe*, t. 13. f. 1, 2, 3. They only found a single specimen, which, they say, they only partially examined. From this description, as the animal differed from *Limax* in so many particulars that it was impossible to keep it in that genus, I formed a temporary genus for it under the name of *Janella*, in the 4th volume of Mrs. Gray's 'Figures of Mollusca,' p. 112. I have just received from New Zealand a specimen of land mollusk which agrees with the animal described by MM. Quoy and Gaimard in so many parti-

culars, that I am inclined to believe it to be either the species they observed, or at least a second species of the same genus; and as it offers some peculiarities not noticed in their description or figure, I shall proceed to characterize the genus.

JANELLA.

Body elongate, convex; back rounded; tail not keeled, tapering, acute behind, without any subcaudal gland. Mantle covering the whole of the back, with a slightly raised lateral margin, leaving a rather broad space between the edge and the edge of the foot, thin, smooth, with a longitudinal groove along the centre of the back extending the whole length of the animal, and giving out branches from each side which diverge backward to the edge; in front, over the head, there is given out a short, straight, diverging branch on each side to the hinder base of the tentacles, then forked, and the two branches continued on the under edge of the mantle to the corner of the mouth; the tentacles two, arising from the front just within the edge of the mantle, and quite retractile like those of the Slugs. Aperture of respiration is a very small round foramen, with a raised edge on the right side and close to the central groove on the back, just above the aperture of reproduction. Mouth inferior, just at the end of the foot, with three tubercles in front, which are formed by the continuation of the grooves on the front of the mantle. Aperture for reproductive organs on the front part of the edge of the right side of the mantle, about one-fourth the entire length from the head.

The foot narrow, divided into three indistinctly-marked longitudinal bands, the middle band rather the widest, the lateral bands with rather distant cross grooves, most distinct on the outer edge, and with shorter marginal grooves between them, giving the edge of the foot a crenated appearance; the end of the body is suddenly more slender, with a prominence on the back just before this sudden alternation, as if the mass of the viscera were confined to the first two-thirds of the body; but this may be caused by the contraction of the animal from being in spirits.

Shell none, or at least there is no appearance of any through the skin.

Janella antipodarum.

Hab. New Zealand. Length three-fourths of an inch.

This genus is most allied to *Philomyces* (= *Tebenophorus*, Binney = *Limacella*, Blainville), with which it agrees in having a thin mantle covering the whole of the back; but it differs from it in the position of the respiratory aperture, and in the presence of

only two tentacles, which, instead of being placed on the head, as in *Philomycus* and all the other *Arionidae* and *Helicidae*, are placed in the front part of the mantle. All these characters induce me to regard it as the type of a new family of *Pulmonata*, which may be called *Janellidae*.

XL.—Notes on the Habits of Bivalve Shell-fish.

By S. P. WOODWARD.

DURING the past summer I spent some time with Mr. Mackie at Folkestone, and being obliged to remain within-doors the greater part of each day, I collected a number of living Bivalves, and kept them in pans of salt water, to watch them at my leisure. The first species met with were *Pholas dactylus* and *candida*, whose colonies are frequent in the beach near low-water mark, wherever a clear space occurs amongst the blocks of Kentish-rag with which the shore is encumbered. The burrows of the Pholades are in black sandy mud, from which they are easily dislodged. At some spots the inhabitants have perished, but the living colonies are readily discovered by treading heavily, or striking the beach with a stick, whereupon the alarmed inmates spirt water from their burrows. The holes of the full-grown *Pholas dactylus* are distinguishable by their larger size, and the strong jets they send up; the original small orifices have been removed by the wasting of the beach, and the present openings, an inch in diameter, were once the middle of each burrow; they are rendered somewhat smaller by a layer of light-coloured mud, which fills up the space between the shell-fish and the wall of its abode. When the shell is partly exposed the *Pholas* still holds strongly with its great foot, which cannot be withdrawn into the shell, and resembles a piece of translucent ice.

Placed in a pan of sea water, the smaller Pholades (*P. candida*) immediately protrude their siphons, and explore the surrounding bottom with them in a remarkably worm-like manner. The young of *P. dactylus* only pushes itself about with its siphons. The branchial currents commence instantly, and never cease unless the creatures are disturbed. The force and volume of these currents are quite marvellous to those who witness them for the first time. The inhalant orifice is trumpet-shaped, and guarded with *cirri*; the exhalant is a little contracted, and in *P. dactylus* projects beyond the other. The foot completely fills the pedal orifice, allowing neither ingress nor egress to currents of water. The current which sets into the branchial siphon carries with it whatever floating particles the water contains, whilst the stream which issues from the exhalant orifice is perfectly clear. However turbid the water may be, it is soon filtered, and the same thing